

ABSTRACT OF THE DISCLOSURE

[0062] An improved rotational motor, such as a spindle motor for a disc drive, is provided. The motor first comprises a hub having a shaft portion and a horizontal body portion. The motor also comprises a sleeve surrounding the shaft portion of the hub. A fine vertical gap is retained between the shaft and the inner diameter of the surrounding sleeve. In addition, a fine horizontal gap is provided between the upper hub portion and the top of the sleeve. The vertical gap is filled with a lubricating liquid, such as a clean oil. A capillary seal is provided in the vertical fluid gap at one end. Preferably, the capillary seal is disposed at an upper end of the shaft proximal to the horizontal gap. Novel air pumping grooves are machined along the horizontal fluid gap. When the hub is rotated, the air pumping grooves create a high pressure region in the vicinity of the capillary seal. This forms a high pressure barrier that reduces the number of oil molecules diffusing out of the capillary seal and, therefore, inhibits oil loss from the system.

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